Commentary

Commentary on: Creating a diabetes foot reminder-based registry using the electronic medical record

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Electronic diabetes lower limb risk stratification

The paper by Wrobel *et al*[1] examined the efficacy of an electronic diabetes foot examination registry to aide stratification of patients into 'risk groups' and thus guides appropriate care. Convincing data exists to demonstrate that patients can be stratified into groups at higher or lower risk of subsequent ulceration/amputation.[2] The stratification tools largely rely on detailed examination findings (neuropathy, peripheral artery disease, abnormalities of foot shape). What is less clear is whether these risk stratification schemes can be successfully translated into effective population based screening.

Findings may be limited by lack of standardisation and wide testing

Wrobel *et al* demonstrated that implementation of a new electronic registry system improved risk profiling of patients with diabetes-related foot disease. However, the study has a number of limitations. Foot examinations between centres were not standardised and were performed by a range of health care practitioners in different health care settings thus confounding outcomes. The new registry system was only trialled at one centre, limiting the generaliseablity of results. Nevertheless the principles of the system and general methodology behind the study were sound and warrant further assessment in different settings.

Lessons for the UK pay-for-performance (P4P) system

In the UK routine foot exam in patients with diabetes occurs largely in primary care and findings of the screen are recorded on general practitioners (GPs) computer systems. From 2004 onwards GPs have been reimbursed for conducting annual foot screening in patients with diabetes; this consists of pulse and sensation assessment. This is part of a wider pay-for-performance (P4P) scheme established to improve the quality of chronic disease management.[3] The majority (c.80–90%) of patients with diabetes are screened as part of the P4P system.[4] However, there are limitations with this approach. Firstly, as Wrobel *et al*, report, it is important not only to identify pathology but to transcribe those findings in to a risk category. In the UK, foot examinations are coded in primary care (using the Read classification) but the foot risk is not derived. Secondly, there is no standardisation of practice and no education/validation or accreditation of screeners (in contrast to the retinal screening programme in the UK). Finally, incentives do not exist to encourage appropriate management of patients once they have been screened (for example referral to a podiatrist etc).

High rates of ulceration, amputation and late presentation to secondary care indicate that screening in its current format is failing patients.[5] Systems to improve the use of the data so routinely collected may have an important role in the prevention of foot disease.

Whilst no effect was demonstrated the approach is promising

Although this paper was unable to demonstrate any effect of the new system on robust patient centred/clinical endpoints, it raises interesting questions about the potential benefits of electronic databases for diabetes-related foot disease. Electronic databases for chronic wound management have been used in other countries. However data collected has been mainly used for research purposes rather than immediate patient management. Examples include the 'German Wound Net' (electronic database) which showed that a 50% reduction in wound area at 4 weeks was a reliable indicator of wound healing.[6] A New York group used a Wound Electronic Medical Record (WEMR) to record data on patients with diabetic foot ulcers and flag up high-risk individuals by translating narrative data, demographics and pathology reports into quantifiable variables. They showed lower attendance at clinic to be associated with higher rates of amputation.[7] What studies have failed to demonstrate is benefit in outcomes demonstrated (i.e. reduced rates of amputation/ulceration, improved quality of life) by using electronic databases. Long term outcomes from using risk stratification systems needs further investigation.

Summary

The key to any screening programme is to have well-established pathways to deal with the at-risk groups identified. Using computer systems to highlight high-risk patients appears attractive but further work is required to then identify and provide the care needed to reduce risk in this group of patients. It is plausible that this will require inputs from across the whole team involved in patients care.

This intervention needs to be tested in more centres and in more countries, with a standardised foot examination to assess the impact of the electronic registry system proposed on the quality of care and clinical outcomes. The early results presented in this study are promising but further research is needed if this intervention is to be more widely adopted.

REFERENCES

1 Wrobel JS, Chagares W, Stuck RM, Weaver F, Crews RT, Rapacki L, Paulson and Armstron DG. Creating a diabetes foot reminder-based registry using the electronic medical record. *Informatics in Primary Care* 2011:18:283–9.

2 Monteiro-Soares M, Boyko EJ, Ribeiro J, Ribeiro I, Dinis-Ribeiro M. Risk stratification systems for diabetic foot ulcers: a systematic review. *Diabetologia* 2011;54(5):1190–9.

3 National Health Service. *National Service Framework 5 years on.* York: NHS Information Centre, (Ref: IC23060111) 2011. www.diabetes.nhs.uk

4 de Lusignan S and Mimnagh C. Breaking the first law of informatics: the Quality and Outcomes Framework (QOF) in the dock. *Informatics in Primary Care* 2006;14(3):153–6.

5 Jeffcoate WJ. Stratification of foot risk predicts the incidence of new foot disease, but do we yet know that the adoption of routine screening reduces it? *Diabetologia* 2011;54(5):991–3.

6 Coerper S, Wicke C, Pfeffer F, Koveker G and Becker HD. Documentation of 7051 chronic wounds using a new computerized system within a network of wound care centers. *Archives of Surgery* 2004;139(3):251–8.

7 Golinko MS, Margolis DJ, Tal A, Hoffstad O, Boulton AJ and Brem H. Preliminary development of a diabetic foot ulcer database from a wound electronic medical record: a tool to decrease limb amputations. *Wound Repair and Regeneration* 2009;17(5):657–65.

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